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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,452	07/16/2003	Yoshiyuki Teshirogi	Q76534	7704

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EXAMINER

BODDIE, WILLIAM

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/619,452

Applicant(s)

TESHIROGI ET AL.

Examiner

William Boddie

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 and 5 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2, 4 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Each claim describes serializing data in a  $2^m$ -bit unit, with a limitation that  $m$  must be a natural number. Zero is included in the set of natural numbers and thus is included in the possibilities of  $m$ . If zero is chosen then,  $2^0 = 1$ -bit unit that does not serialize the data as stated in each claim. Simply restricting  $m$  to natural numbers larger than zero would appropriately resolve this problem.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura (US 6,628,256) in view of Thompson et al. (US 4,823,120).

**With respect to claim 1**, Nishimura discloses, a video data transfer method of a liquid crystal display device, said video data transfer method characterized in that, in the event that the bit inversion number between data positioned previously (dc1 to 24 in fig. 4) and data positioned subsequently (da1 to 24 in fig. 4) in a continuous sequence of

Art Unit: 2674

said output video data is more than half of the bit number of the output video data, an inversion process for inverting a logic state the succeeding output video data is performed at a stage of said input video data that is composed of the parallel data (col. 8, lines 63-67 col. 9, lines 1-5).

Nishimura does not expressly disclose, that the video data transfer method also transfers input video data that is composed of parallel data as partially serialized output video data to a signal-line driving circuit.

Thompson discloses, parallel video data (two 12 bit parallel signals; see outputs of 19 and 44 in fig. 2) that is partially serialized (32 in fig. 2) to be output as video data to a signal-line driving circuit (35 in fig. 2).

Thompson and Nishimura are analogous art because they are both from the same field of endeavor namely, control circuitry for video data.

At the time of the invention it would have been obvious to one of ordinary skill in the art to utilize the partial serialization of Thompson in the inversion detection of Nishimura. This would be accomplished by using Thompson elements 17, 18 and 32 of fig. 2 and adjoining them to outputs of Nishimura's fig. 2.

The motivation for doing so would have been to decrease the number of wirings to the signal driver as well as to increase the speed of the data.

Therefore, it would have been obvious to combine Thompson and Nishimura for the benefit of increased data speed to obtain the invention as specified in claim 1.

**With respect to claim 2**, Nishimura discloses, a video data transfer method characterized in that an inversion or a noninversion of a polarity of a succeeding bit is

Art Unit: 2674

made for each of  $3 \times 2^{(n-m)}$  bits (see 12 in fig. 4,  $n=4$   $m=1$ ) of said input video data that corresponds to  $3 \times 2^{(n-m)}$ -bit parallel data of said output video data (see dd1 to 24 in fig. 4) so that the bit inversion number between previously positioned data and subsequently positioned data of a  $3 \times 2^{(n-m)}$ -bit parallel of said output video data is  $3 \times 2^{(n-m-1)}$  or less (for an example of Nishimura's process see col. 8, lines 62-67 – col. 9, lines 1 –5; states that half of the data ( $3 \times 2^{(n-m-1)}$ ) has to be inverted from previous to subsequent data to trigger the polarity inversion).

Nishimura does not expressly disclose, a video data transfer method of a liquid crystal display device for serializing input video data of a  $3 \times 2^n$ -bit parallel in a  $2^m$ -bit unit ( $n$  and  $m$ : natural numbers,  $n > m$ ) to transfer it as output video data of a  $3 \times 2^{(n-m)}$ -bit parallel to a signal-line driving circuit.

Thompson discloses, outputting parallel video data (two 12 bit parallel signals [ $n=2$ ]; see outputs of 19 and 44 in fig. 2) that is partially serialized (note the 12 bit output of 32 in fig. 2) to a signal-line driving circuit (35 in fig. 2).

At the time of the invention it would have been obvious to one of ordinary skill in the art to utilize the partial serialization means of Thompson (18, 17 and 32 in fig. 2) on the output buses of Nishimura [while these two pieces of art detail slightly different bit widths, it is well known in the art to alter bit widths as well as how to expand certain components to accept more/less parallel data, note Nishimura, col. 9, lines 48-57]).

The motivation for doing so would have been to decrease the number of wirings to the signal driver as well as to increase the speed of the data.

Therefore, it would have been obvious to combine Thompson and Nishimura for the benefit of increased data speed to obtain the invention as specified in claim 2.

***Allowable Subject Matter***

5. Claims 4 and 6 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

6. Claims 3 and 5 are allowed.

7. The following is a statement of reasons for the indication of allowable subject matter:

with respect to claim 3, the prior art fails to teach or suggest a motivation for creating display control circuitry containing numerous comparison determination means as described by the applicant, that invert select bits of previous and subsequent data;

with respect to claim 4, the prior art fails to teach or suggest a motivation for numerous comparison determination means that are designed for a specific bit number relationship, that also invert select bits of previous and subsequent data;

with respect to claims 5 and 6, these claims are identical to claims 3 and 4 respectively, except for the further limitation of requiring that the display control circuitry be utilized on a liquid crystal display, as these claims are seen to only limit the scope of claims of 3 and 4 they are seen as allowable for the same reasons as shown above.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hong et al. (US 6,335,718) discloses inversion determination

Art Unit: 2674

means and reversing polarity if half of the bits changed between previous and subsequent data.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Will Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

wlb  
10-31-05

  
REGINA LIANG  
PRIMARY EXAMINER